

WHAT IS CLAIMED IS:

1. A stylus for use with a light sensitive user input device, comprising:
a light-emitting device configured to emit a light beam through a tip of the
5 stylus when the tip is not in contact with an input surface of the input device, the light beam
having a property that abruptly changes when the tip of the stylus sufficiently contacts the
input surface, the abrupt change in the light beam being detectable by the light sensitive user
input device.
- 10 2. The stylus of claim 1, further comprising a switch coupled to the tip, the switch
configured to actuate the abrupt change.
3. The stylus of claim 1, wherein the abrupt change is a change in beam intensity.
- 15 4. The stylus of claim 1, wherein the abrupt change is a change in beam
wavelength.
5. The stylus of claim 1, wherein the abrupt change is a change in beam
modulation.
- 20 6. The stylus of claim 5, wherein the change in beam modulation is a change in
frequency modulation.
7. The stylus of claim 5, wherein the change in beam modulation is a change in
25 duty cycle of the modulation.
8. The stylus of claim 5, wherein the change in beam modulation is a change in
pulse width of the modulation.

9. The stylus of claim 1, wherein the abrupt change is cross-sectional size of the beam.

10. The stylus of claim 1, wherein the abrupt change is a change in polarization.

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11. The stylus of claim 1, further comprising an auxiliary switch for controlling the light beam.

12. The stylus of claim 11, wherein the auxiliary switch turns the light beam on and off.

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13. The stylus of claim 11, wherein the auxiliary switch causes the abrupt change in the light beam to simulate a condition where the tip contacts the input surface.

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14. The stylus of claim 11, wherein the auxiliary switch changes the beam intensity.

15. The stylus of claim 11, wherein the auxiliary switch changes the beam modulation.

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16. The stylus of claim 11, wherein the auxiliary switch changes the beam wavelength.

17. The stylus of claim 11, wherein the auxiliary switch focuses the beam.

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18. The stylus of claim 11, wherein the auxiliary switch defocuses the beam.

19. A user input device comprising:
a plurality of light sensors disposed to detect light transmitted through an input

surface of the input device;

a stylus configured to emit a light beam through a tip independent of whether the tip is in contact with the input surface, the light beam being detectable by the sensors; and

electronics coupled to the sensors and configured to determine the light beam
5 location at a reference plane,

wherein when the tip contacts the input surface, a property of the light beam abruptly changes in a manner detectable by the sensors.

20. The user input device of claim 19, wherein the input surface comprises an
10 exterior surface of an electronic display.

21. The user input device of claim 20, wherein the electronic display comprises a liquid crystal display.

15 22. The user input device of claim 20, wherein the electronic display comprises an organic electroluminescent display.

23. The user input device of claim 20, wherein the plurality of light sensors are integrated into a transistor array that controls pixels of the electronic display.
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24. The user input device of claim 19, wherein the reference plane is the input surface.

25. The user input device of claim 19, wherein the light sensors are configured to
25 detect light within a selected range of wavelengths, and the light beam exhibits a color within the selected range of wavelengths.

26. The user input device of claim 25, further comprising color filters disposed to filter light received by the light sensors.

27. The user input device of claim 26, wherein the color filters are blue color filters, and the stylus is configured to emit blue light.

5 28. A system comprising a user input device according to claim 19 and an electronic display disposed to display information through the input surface of the input device.

29. The system of claim 28, wherein the electronic display is a liquid crystal
10 display.

30. The system of claim 29, wherein the plurality of light sensors is incorporated into the liquid crystal display.

15 31. The system of claim 28, wherein the electronic display comprises a plurality of organic electroluminescent light-emitting devices.

32. The system of claim 31, wherein at least a portion of the organic electroluminescent light-emitting devices are used as the light sensors.

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33. A method for using an input device that includes a light-emitting stylus for emitting a light beam and a plurality of light sensors disposed to detect the light beam transmitted through an input surface of the input device, the method comprising:

25 detecting the light beam when the stylus is not contacting the input surface;
detecting the light beam when the stylus is contacting the input surface;
abruptly changing a property of the light beam when the stylus sufficiently
contacts the input surface; and
detecting the abruptly changed property of the light beam.

34. The method of claim 33, further comprising determining the location of the light beam at a reference plane when the stylus is not contacting the input surface.

35. The method of claim 33, further comprising determining the location of the
5 light beam at a reference plane when the stylus is contacting the input surface.